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TECHNICAL RESEARCH REPORT 1122

**DEVELOPMENT OF
ACB AUTOMOTIVE INFORMATION
AND CLERICAL SPEED TESTS**

FORMS 3 AND 4

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DEVELOPMENT OF ACB AUTOMOTIVE INFORMATION
AND CLERICAL SPEED TESTS, FORMS 3 AND 4

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March 1962

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PREFACE

The present publication reports on a portion of Subtask c, "Preparation of Selected Alternate ACB Tests," of the NEW CLASSIFICATION TECHNIQUES Task, FY 62 Work Program. The entire research task is responsive to special requirements of the Deputy Chief of Staff for Personnel, the Deputy Chief of Staff for Logistics, and the U. S. Continental Army Command, and furthers the U. S. Army Military Personnel Management objective of developing, and making available for operational use, research products to optimize the selection, classification, assignment, and utilization of Army personnel.

Development of test materials that will increase the effectiveness of the operational Army Classification Battery is a continuing task. The importance to the Army of personnel decisions made on the basis of the ACB makes it particularly necessary that these tests be kept current. Measures are also needed of human factors not yet provided for in the ACB, including measures of physical proficiency to predict whether an individual will continue to meet the physical requirements of his assignment. Additional measures of personal factors to indicate what a man will do on the job, as opposed to what he can do, are especially needed.

The primary objectives of the NEW CLASSIFICATION TECHNIQUES Task are to explore new test content that will increase the effectiveness of classification and assignment in the Army, and to construct up-to-date tests to maintain the effectiveness of tried and tested measures in operational use. A special requirement involves determination of effective combinations of screening and classification measures to evaluate the potential usefulness to the Army of applicants for enlistment and selective service registrants.

BRIEF

DEVELOPMENT OF ACB AUTOMOTIVE INFORMATION AND CLERICAL SPEED TESTS, FORMS 3 AND 4

Requirement:

To develop new operational forms of two Army Classification Battery tests, the Automotive Information Test and the Army Clerical Speed Test, with emphasis on updated content for the AI forms and shorter length and improved format for the ACS forms.

Procedure:

Experimental forms of the new tests were constructed, then administered along with the original operational forms to a sample of 728 men from enlisted input during September 1960. The sample was selected to be representative of the World War II full mobilization Army population in terms of mental ability. Both experimental and operational ACB test scores were analyzed to obtain statistics needed to make determinations concerning the reliability or stability of the tests, the independent contribution of each to differential classification, and equivalence of the alternate forms of each test. Army Standard Score equivalents of raw scores on the new forms were computed.

Findings:

The new Automotive Information Test (Forms AI-3 and AI-4) was found to be a satisfactory replacement for AI-1 and AI-2 in that it had sufficient reliability, was similar to prior operational tests, and was well differentiated from the ACB Verbal measure.

The Army Clerical Speed Test (Forms ACS-3 and ACS-4) was also found to be a reliable measure of clerical aptitude, in spite of substantial reduction in length.

Utilization of Findings:

In January 1962, the new forms of AI and ACS were introduced operationally, replacing the prior forms as component tests of the Army Classification Battery.

It is evident that the shortened form of the ACS has resulted in an estimated saving of one-third the cost of scoring the test, and more important, has eliminated a source of error which had been noted in the scoring of ACS-1 and ACS-2, namely, occasional failure to score the third page of the three-page answer sheet required.

DEVELOPMENT OF ACB AUTOMOTIVE INFORMATION AND CLERICAL SPEED TESTS, FORMS 3 AND 4

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DEVELOPMENT OF ACB AUTOMOTIVE INFORMATION AND CLERICAL SPEED TESTS, FORMS 3 AND 4

New forms of the operational tests of the Army Classification Battery (ACB) are developed and introduced, as operating conditions require, to preclude the adverse effects of overuse or content obsolescence. At the same time, relevant improvements and economies in testing and scoring procedures, which may have emerged as a result of research and development, are incorporated in the newer forms, provided such changes do not affect the usefulness of the tests as replacements for the operational forms. The introduction of new forms of ACB tests normally involves the following steps:

1. Development of experimental forms of the tests.
2. Administration to an appropriate sample of enlisted men to determine suitability of the experimental forms as replacements for the old operational forms.
3. Analysis to establish that the new tests are measures of the same abilities as the operational tests they are to replace.
4. Analysis to determine whether the two alternate forms of each test are sufficiently stable and equivalent to justify interchangeability of the forms in the operational situation.
5. Construction of tables for converting raw scores on the new tests to Army Standard scores.

The Automotive Information Test, AI-1 and -2, and the Army Clerical Speed Test, ACS-1 and -2, were in use from the inception of the ACB in 1947 through 1961. The purpose of the present report is to describe the above steps in connection with the development of replacement forms of these tests--AI-3, and -4 and ACS-3 and -4, introduced operationally in January 1962.

SELECTING CONTENT FOR THE NEW TESTS

The Automotive Information Test

The Automotive Information Test is designed to measure aptitudes required for Military Occupational Specialties in the Motor Maintenance (MM) occupational area. Questions test knowledge of basic automotive structure, operation, and maintenance. Validity of the test appears to be based on the fact that in the United States culture of today adolescent boys have opportunities to learn about cars and motor mechanics, both from school courses and from personal experience. Those who are

strongly motivated--and who possess the necessary ability--tend to score relatively high on a test of information about automotive and other mechanical equipment and its operation. Content of tests measuring aptitude in this area must, accordingly, be kept reasonably current.

Forms AI-3 and AI-4 were assembled for the present standardization research by analyzing responses obtained when a large pool of questions was administered to samples of enlisted input. In selecting questions--or items--for inclusion in the standardization forms, consideration was given to the proportions of men giving the correct answer, the relationship of each item to the operational Automotive Information Test score, and the value of each item in differential classification as estimated by its relationship to scores on other ACB tests, particularly the Verbal Test. That is, to the extent that an item tended not to measure verbal aptitude, it was acceptable.

The selected items, on the average, bore moderately close relationship to the operational AI score, as high as could be expected in view of the modernization of test content, thus promising satisfactory substitution for the operational measure. Low average relationship to scores on the ACB Verbal Test gave promise of reasonable differentiation from verbal ability. A brief account of the item analysis study is given in the Technical Supplement.

The Army Clerical Speed Test

The Army Clerical Speed Test is designed to measure clerical aptitude by a series of number-comparison and coding items. While obsolescence of content is not a problem with such tests, periodic introduction of alternate forms is advisable to reduce danger of compromise. Furthermore, operational forms ACS-1 and -2 required the scoring of three pages of answers, a procedure conducive to scoring error. Instances had been reported wherein only two of the three pages had been scored, resulting in a considerable reduction of the individual's score. Experimentation with a shorter form, requiring only two sides of a single answer sheet, had given satisfactory results (Bayroff, Seeley, and Anderson, 1959). The new forms, ACS-3 and -4, are therefore shorter, with proportions of item types paralleling those of the operational ACS-1 and -2. The new test requires five minutes of testing time, in contrast to the ten minutes required for the longer test. More important, a source of scoring error has been eliminated. In view of the nature of the test content, no item analysis was necessary in assembling the standardization forms.

METHOD

Standardization samples of nonprior service enlisted men were collected from September 1960 Army input. The experimental tests and the operational ACB tests were administered at Reception Stations and selected Armed Forces Examining Stations (AFES) in the First, Third, and Sixth Army Areas. Samples were matched in distribution of mental ability (as

estimated from Armed Forces Qualification Test score) to the upper 90 percent of the mobilization population of World War II, the population on which Army Standard Scores has been established for forms 1 and 2 of the operational AI and ACS tests.

EVALUATION OF THE AUTOMOTIVE INFORMATION TEST, AI-3 AND AI -4

The newly developed AI forms were found to rank individuals in much the same order as did the operational forms. The new forms are equivalent to each other in terms of difficulty and provide scores with substantially the same amount of spread, as evidenced by comparable means and standard deviations. They can, therefore, be administered interchangeably in the field.

The Automotive Information Test is currently a component of one of the Combat aptitude areas, Artillery-Armor-Engineer (AE), as well as of the Motor Maintenance (MM) Aptitude Area. The new forms can be expected to contribute satisfactorily to the effectiveness of the two composites as tools of differential classification. AI-3 and -4 bear much the same relationship to the General Information Test, the other test in the AE composite, as did AI-1 and -2. In the case of the Motor Maintenance Aptitude Area, the new forms were successful in reducing slightly the relationship between AI and the Mechanical Aptitude Test, the other MM component. The composite based on AI-3 or -4 could, therefore, be expected to be no less effective than the composite based on the prior forms.

These findings, coupled with evidence of satisfactory reliability, left no question as to the advisability of introducing the new forms into the ACB.

EVALUATION OF THE ARMY CLERICAL SPEED TEST, ACS-3 AND ACS-4

Relationship between the two new forms of the Army Clerical Speed Test and operational forms 1 and 2 was sufficiently close to warrant use of the new--and shorter--forms as the clerical speed measure of the ACB.

Tests such as the ACS, consisting of a relatively large number of similar problems, can be expected to show the influence of practice. That is, scores tend on the average to be higher on a second or third administration of the same or similar test than on a first. In the present study, experimental and operational tests were administered in counterbalanced order to two similar samples so that the amount of practice effect could be estimated. • Increase in average score from first to later administrations proved to be appreciable. This finding influenced the decision to base conversion to Army Standard Scores on the relationship between ACS-3 and -4 scores and scores on the General Technical Aptitude Area, a measure much less subject to the effect of practice.

Satisfactory equivalence of the two new forms was indicated by fairly high correlation between the two sets of scores. Additionally, when the two new forms were both administered first in the testing sequence, there was no appreciable difference in the average score attained nor in the distribution of scores.

The Army Clerical Speed Test is used operationally by combining it with the Verbal Test to obtain the Clerical (CL) Aptitude Area score. Experimental ACS, forms 3 and 4, bore about the same degree of relationship to the Verbal Test as did the operational ACS. The new forms could, therefore, be expected to make a satisfactory contribution to the validity of the CL composite.

CONCLUSIONS

The Automotive Information Test, AI-3 and AI-4, compares satisfactorily with previous forms in relevant test characteristics. As part of the ACB, its contribution to the differential prediction of abilities can be expected to be equal to--and perhaps slightly better than--that of the somewhat obsolescent AI-1 and AI-2. Equivalence of the two new forms is adequate for their use as interchangeable alternate forms.

The Army Clerical Speed Test, ACS-3 and ACS-4, though approximately half the length of ACS-1 and ACS-2, provides scores comparable to scores on the earlier forms.

Tables for converting raw scores on the new tests to Army Standard Scores appear in Appendixes B-1 and B-2.

DEVELOPMENT OF NEW OPERATIONAL FORMS OF THE ACB
AUTOMOTIVE INFORMATION AND CLERICAL SPEED TESTS

Technical Supplement

TECHNICAL SUPPLEMENT

The purpose of this technical supplement is to provide more detailed information on certain steps in test construction and data analysis carried out in connection with the development of new operational forms of the Automotive Information Test and the Army Clerical Speed Test of the Army Classification Battery.

ITEM SELECTION FOR STANDARDIZATION FORMS, AI-3 AND AI -4

A pool of 324 automotive information items constructed by Army subject matter experts under the direction of research psychologists was assembled into three test booklets of equal length. In February 1960, each form was administered to three groups of enlisted men randomly selected from current input (N's = 402, 407, and 429). Each item was analyzed to determine the proportion getting the correct response. Tetrachoric correlation coefficients were computed between item response and scores on the operational Automotive Information (AI) and Verbal (VE) tests. The objective was to select items with p-values between .40 and .80, showing high correlation with AI and low correlation with VE.

Items were selected to provide optimum distributions of p-values rather than to duplicate exactly the mean difficulty of the operational AI. This objective led to a selection of items which were on the average slightly less difficult than those of the operational AI. The mean p-value was .60, which was equal to a value of .50 when corrected for chance in four-choice test items. The average item-correlation of .19 with VE promised reasonable differentiation from that measure. Average item-correlation with AI was .54. Statistics for items appearing in the standardization forms are presented in Appendix A.

STANDARDIZATION SAMPLES

Standardization samples of enlisted examinees, collected from the September 1960 nonprior service enlisted input, were stratified on Armed Forces Qualification Test (AFQT) score. Cases were distributed to conform to the upper 90 percent of the full mobilization population of World War II against which the operational ACB tests had been standardized. Examinees were divided into two samples, tested at the same time by distributing alternate forms to every other row of examinees, or to every other examinee. Experimental and operational tests were administered to the two samples in the following order:

Sample A	Sample B
1. AI-3	AI-4
2. ACS-3	ACS-4
3. ACB (AI-1 or AI-2)	ACB
4. ACS-4	ACS-3
5. AI-4	AI-3

A total of 728 cases remained after elimination of cases with incomplete data and removal of cases in excess of the number required by the various strata of the distribution. The two samples of 364 each were used for the correlational analysis of both tests and for establishing Army Standard Score equivalents of AI-3 and -4. For the ACS norms, unstratified samples of 598 and 563 were used.

ANALYSIS OF AUTOMOTIVE INFORMATION TEST, AI-3 AND AI-4

The principal question to be investigated was whether the new alternate forms were sufficiently correlated with the operational forms to serve as their replacements in the ACB. The standard adopted was that correlation between the experimental and the operational test should be high enough to reproduce the reliability coefficient of the operational test.

Intercorrelations of the experimental and operational forms of the AI ranged from .84 to .90, indicating that the forms are highly correlated (Table 1). The lack of any appreciable difference in the magnitude of the means and standard deviations for AI-3 and -4 gave evidence of their equivalence as alternate forms of the same test (Table 3). Since the newer forms were constructed to be of slightly lower difficulty than the operational AI forms, the two sets of tests could not be compared in terms of means and standard deviations.

A reasonable estimate of the reliability of AI-3 and -4 is .88, a value comparable to the reliability of operational forms AI-1 and -2 which was previously ascertained to be .90 (Brogden, June 1945).

Testing order for the two samples was designed to permit comparison between scores on a standardization test as administered before and after the operational battery. An appreciable change in scores on repeated administration would suggest that available scores on the operational test (administered as part of the ACB) might also have been affected by the prior administration on one standardization form. In that case, the operational test scores could not be used as reference points in the conversion of the new test scores to standard scores.

In the case of the Automotive Information Test, no important difference in means was found between the first administration of a standardization form and a later administration of the alternate form. The result was replicated in the two samples. To establish norms, cumulative percentage distributions of the raw scores on each form were prepared separately within each of the two samples. Since distributions for a given form were found to be similar in the two samples, the two AI-3 distributions were combined, as were the two AI-4 distributions. Raw score equivalents to standard scores on the operational Automotive Information Test were computed by the equipercentile method. Because the alternate forms were found to be highly equivalent, it was feasible to develop a single conversion table that applies equally to AI-3 and -4 (Appendix B-1).

ANALYSIS OF ARMY CLERICAL SPEED TEST, ACS-3 AND ACS-4

In both samples, mean score of the ACS form given first in the testing sequence was lower than the mean of the test given third (after administration of the operational ACS as part of the classification battery). Differences were significant at the .01 level. Also, the operational ACS, given second in both samples, was more highly correlated with whichever standardization form was given third than with the standardization form given first. This finding suggested that the second and third administrations were measuring more in common than were the first and second administrations.

Since the testing sequence clearly affected scores on the Army Clerical Speed Test, the operational form could not serve as a reference test in preparing a table for converting raw scores on the new tests to Army standard scores. The conversion table (Appendix B-2) was therefore based only on data from the first administration of ACS-3 and -4 to the two standardization samples, and the General Technical Aptitude Area (GT) was used as the reference measure. GT, composed of Verbal (VE) and Arithmetic Reasoning (AR) test scores equally weighted, correlated .55 with the operational ACS, and .57 with each of the standardization forms when the latter were given first in the testing sequence.

Intercorrelations among the forms of the Army Clerical Speed Test range from .69 to .86 (Table 2). ACS-3 and -4 correlated .76 in one sample, .74 in the other, indicating reasonable equivalence and reliability of the two forms despite the influence of practice. There was no appreciable difference in means and standard deviations when both standardization forms were administered first, that is, to different but similar samples (Table 3)--another indication of satisfactory equivalence of the two forms.

The reliability of the Clerical Aptitude Area Score (a composite of ACS and the Verbal Test) was estimated by correlation of sums to be .84, indicating that the aptitude area score based on ACS-3 or ACS-4 is satisfactory for operational use.

Table 1

INTERCORRELATIONS OF AUTOMOTIVE INFORMATION TEST,
AI-3 AND AI-4 AND OPERATIONAL AI-1 OR -2

Sample A (N = 364)

Testing Order	Form	AI-3	Operational AI-1 or -2	AI-4	Mean	S.D.
FIRST	AI-3	<u>1</u>			22.94	9.31
SECOND	AI-1 or -2	.84	<u>2</u>		-----	-----
THIRD	AI-4	.86	.86	<u>3</u>	23.74	9.37

Sample B (N = 364)

THIRD	AI-3	<u>1</u>			25.42	9.79
SECOND	AI-1 or -2	.89	<u>2</u>		-----	-----
FIRST	AI-4	.90	.88	<u>3</u>	23.38	9.75

Table 2

INTERCORRELATIONS OF ARMY CLERICAL SPEED TEST,
ACS-3 AND ACS-4 AND OPERATIONAL ACS-1 OR -2

Sample A (N = 364)

Testing Order	Form	ACS-3	Operational ACS-1 or -2	ACS-4	Mean	S.D.
FIRST	ACS-3	<u>1</u>			48.22	16.86
SECOND	ACS-1 or -2	.74	<u>2</u>		-----	-----
THIRD	ACS-4	.76	.86	<u>3</u>	56.36	16.23

Sample B (N = 364)

THIRD	ACS-3	<u>1</u>			55.57	14.77
SECOND	ACS-1 or -2	.82	<u>2</u>		-----	-----
FIRST	ACS-4	.74	.69	<u>3</u>	47.51	16.52

Table 3

MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS OF EXPERIMENTAL AND OPERATIONAL ACB TESTS AND AFQT
(N = 728)

Tests	Intercorrelations															M	S.D.
	AI-3	AI-4	ACS-3	ACS-4	VE	AR	PA	MA	ACS	SM	AI	CI	GIT	ELI	AFQT		
Experimental ACB																	
1. Automotive Information (AI-3)	<u>1</u>															24.18	9.63
2. Automotive Information (AI-4)	.87	<u>2</u>														23.56	9.56
3. Army Clerical Speed (ACS-3) ^a	.21	.18	<u>3</u>													48.22	16.86
4. Army Clerical Speed (ACS-4) ^a	.28	.30	.75	<u>4</u>												47.51	16.52
Operational Tests																	
5. Verbal (VE) Standard Scores	.39	.39	.47	.46	<u>5</u>											105.38	23.28
6. Arithmetic Reasoning (AR) Standard Scores	.43	.44	.59	.59	.69	<u>6</u>										104.25	21.08
7. Pattern Analysis (PA) Standard Scores	.45	.43	.46	.43	.57	.65	<u>7</u>									104.29	21.75
8. Mechanical Aptitude (MA) Standard Scores	.56	.57	.35	.41	.54	.58	.58	<u>8</u>								106.21	17.82
9. Army Clerical Speed (ACS) Standard Scores	.25	.26	.74	.69	.46	.56	.45	.38	<u>9</u>							109.76	18.01
10. Shop Mechanics (SM) Standard Scores	.65	.66	.30	.34	.56	.56	.55	.68	.38	<u>10</u>						104.56	18.05
11. Automotive Information (AI) Standard Scores	.86	.87	.18	.26	.38	.45	.45	.60	.23	.68	<u>11</u>					104.08	19.84
12. Classification Inventory (CI) Standard Scores	.31	.29	.28	.28	.42	.43	.36	.39	.29	.38	.34	<u>12</u>				109.39	19.17
13. General Information (GIT) Standard Scores ^b	.62	.65	.37	.33	.64	.61	.53	.61	.38	.68	.64	.48	<u>13</u>	0		106.45	17.50
14. Electronics Information (ELI) Standard Scores	.52	.56	.28	.28	.50	.50	.56	.59	.27	.60	.55	.36	.60	<u>14</u>		101.61	21.99
15. Armed Forces Qualification Test (AFQT) Percentile Scores	.60	.60	.42	.44	.70	.74	.74	.67	.42	.69	.60	.47	.69	.62	<u>15</u>	54.74	26.22

^aExperimental ACS correlation are for the first administration of each form for half-samples.

^bN = 562; inasmuch as GIT was administered at RCs but not at AFES, GIT coefficients have been corrected for restriction in range.

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APPENDIXES

APPENDIX

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A ITEM STATISTICS FOR AUTOMOTIVE INFORMATION TEST, FORMS AI-3 AND AI-4

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Appendix A-1

P-VALUES AND CORRELATIONS WITH OPERATIONAL AUTOMOTIVE INFORMATION AND VERBAL TESTS OF ITEMS SELECTED FOR STANDARDIZATION FORM AI-3

Item No.	p	Tetrachoric r		Item No.	p	Tetrachoric r	
		AI	VE			AI	VE
1	68	42	-.04	21	78	52	07
2	64	62	27	22	64	59	01
3	75	70	42	23	72	60	23
4	70	48	27	24	67	53	03
5	70	53	25	25	60	66	22
6	67	55	22	26	68	49	32
7	70	29	-.08	27	54	56	21
8	70	45	19	28	56	56	34
9	66	71	22	29	54	50	23
10	59	45	12	30	52	56	19
11	59	55	20	31	49	45	16
12	56	60	26	32	54	63	20
13	65	48	21	33	52	43	24
14	63	60	26	34	39	50	24
15	61	60	12	35	52	31	-.03
16	59	41	20	36	51	48	18
17	56	68	32	37	46	52	23
18	56	59	34	38	45	27	-.08
19	79	51	24	39	44	54	15
20	57	49	-.03	40	42	43	16

$$\bar{p} = .598$$

$$\bar{r}_{AI} = .542$$

$$\bar{r}_{VE} = .182$$

Appendix A-2

P-VALUES AND CORRELATIONS WITH OPERATIONAL AUTOMOTIVE INFORMATION AND VERBAL TESTS OF ITEMS SELECTED FOR STANDARDIZATION FORM AI-4

Item No.	p	Tetrachoric r		Item No.	p	Tetrachoric r	
		AI	VE			AI	VE
1	79	57	34	21	78	54	04
2	73	67	28	22	69	54	30
3	69	46	31	23	67	70	09
4	70	52	39	24	66	57	20
5	69	42	27	25	65	67	19
6	67	50	13	26	60	64	31
7	70	55	20	27	44	44	24
8	62	60	30	28	54	46	15
9	61	55	25	29	53	56	36
10	57	53	04	30	52	51	27
11	74	49	-06	31	49	60	14
12	66	55	10	32	64	37	16
13	64	65	29	33	68	58	39
14	60	53	20	34	47	59	17
15	56	50	24	35	48	46	-03
16	55	30	-06	36	47	46	07
17	55	68	13	37	44	55	19
18	54	63	36	38	43	46	18
19	52	43	15	39	42	50	20
20	80	57	13	40	37	49	07

$$\bar{p} = .598$$

$$\bar{r}_{AI} = .537$$

$$\bar{r}_{VE} = .192$$

Appendix B-1

CONVERTING TO STANDARD SCORES ON THE AUTOMOTIVE INFORMATION TEST FORMS AI-3 AND AI-4

Raw Score	Standard Score	Raw Score	Standard Score
40	150	20	96
39	145	19	95
38	141	18	93
37	137	17	92
36	134	16	90
35	131	15	88
34	128	14	86
33	125	13	84
32	122	12	82
31	119	11	80
30	117	10	78
29	114	9	76
28	112	8	74
27	109	7	72
26	107	6	70
25	105	5	68
24	103	4	66
23	101	3	64
22	99	2	61
21	98	1	58
		0	55

Appendix B-2

TABLE FOR CONVERTING TO STANDARD SCORES ON THE ARMY CLERICAL SPEED TEST,
FORMS ACS-3 AND ACS-4

Raw Score	Standard Score	Raw Score	Standard Score	Raw Score	Standard Score
110	150	70	129	30	30
109	150	69	129	29	29
108	149	68	128	28	27
107	149	67	127	27	26
106	148	66	126	26	24
105	148	65	125	25	23
104	148	64	124	24	21
103	147	63	123	23	20
102	147	62	122	22	18
101	147	61	121	21	17
100	146	60	120	20	15
99	146	59	118	19	14
98	146	58	117	18	13
97	145	57	116	17	12
96	145	56	115	16	11
95	145	55	114	15	10
94	144	54	113	14	9
93	144	53	112	13	8
92	144	52	110	12	7
91	143	51	109	11	6
90	143	50	108	10	5
89	142	49	106	9	4
88	142	48	105	8	3
87	141	47	104	7	2
86	141	46	102	6	1
85	140	45	101	5	0
84	140	44	100	4	0
83	139	43	98	3	0
82	139	42	97	2	0
81	138	41	96	1	0
80	138	40	95	0	0
79	137	39	94		
78	136	38	92		
77	135	37	91		
76	135	36	89		
75	135	35	88		
74	133	34	86		
73	132	33	85		
72	131	32	83		
71	130	31	82		

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